

***Aedes albopictus* (DIPTERA: CULICIDAE) OCCURRENCE THROUGHOUT TENNESSEE, WITH BIOLOGICAL NOTES¹**

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ABSTRACT: *Aedes albopictus*, the Asian tiger mosquito, was recorded for the first time in 87 of Tennessee's 95 counties. Continued occurrence of this species in the remaining 8 Tennessee counties was confirmed. Notes are provided on other mosquito species sharing larval habitats with *Ae. albopictus*, as well as the observed photoperiod-induced egg diapause of *Ae. albopictus* in Montgomery County, Tennessee.

A survey of Tennessee's 95 counties was conducted during 1997 to determine the presence of *Aedes albopictus* (Skuse), the Asian tiger mosquito. This survey, primarily of water-containing tire habitats, established the first record of *Ae. albopictus* in 87 Tennessee counties and confirmed the continued presence of the species in the remaining 8 counties with previously reported infestations (Chet Moore, CDC, personal communication). These 8 counties are Anderson, Coffee, Davidson, Gibson, Henderson, Lawrence, Montgomery, and Shelby.

Mosquito larvae were collected from 108 sites in 86 counties from July to October 1997. These sites consisted of new and waste automotive tires located at roadside dumps (12), county waste collection points (2), and commercial tire businesses (91). Other sites included outdoor plastic and masonry containers at residences (2) and roadside dumps (1). Larvae were collected directly from the tire or other container using a siphon, transported to the laboratory, and identified using standard light microscopy and the taxonomic references of Darsie and Ward (1981), Darsie (1986), and Reinert et al. (1997). At 51% of the larval collection sites, *Ae. albopictus* was the only culicid species collected (Table 1). *Aedes albopictus* shared the habitat with other mosquito species at an additional 31% of the sites, making this species the predominant culicid resident of tire habitats in Tennessee.

Adult *Ae. albopictus* were collected from 50 sites in 50 counties during this survey. An aspirator was used to collect the adults (both sexes) resting at 26 sites and feeding on man at 24 sites. Adult specimens were examined using a dissecting microscope and identified using the taxonomic references of Darsie and Ward (1981) and Darsie (1986). Collection data for each collection site is preserved and available for anyone wishing to visit the collection sites for control purposes.

Aedes triseriatus (Say) was found as the sole inhabitant at 5% of the sites.

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Aedes triseriatus was found with other culicid species at an additional 6% of the sites; *Ae. albopictus* was always one of its cohabitants. This indicates that the Asian tiger mosquito has not totally excluded *Ae. triseriatus* from tire habitats in Tennessee, as had been predicted by Livdahl and Willey (1991).

No specimens of *Aedes aegypti* (Linnaeus) were collected during this survey. However, *Ae. aegypti* larvae were collected previously by the author from tire habitats in Montgomery County, TN, during July 1996 and April 1997. This may indicate that *Ae. albopictus* is competitively displacing *Ae. aegypti* from tire habitats in Tennessee. However, most of Tennessee is in the region identified by Darsie and Ward (1981) as the extreme range for *Ae. aegypti*.

Some populations of *Ae. albopictus* exhibit a photoperiod-induced egg diapause (Hawley et al. 1989, Estrada-Franco and Craig 1995). As the species adapts to new locations, the photoperiod response may be altered, providing researchers with a measure of the length of time the species has inhabited a region (Chet Moore, CDC, personal communication). There are no historical data on the photoperiodism of *Ae. albopictus* in Tennessee. In Montgomery County, TN, during 1997, the hatching of *Ae. albopictus* eggs in outdoor artificial containers was observed as early as 17 April (13.2 hours daylight) and as late as 2 October (11.8 hours daylight).

Table 1. Species composition of larval mosquito collections from Tennessee (July - October 1997), showing percentage of 108 collection sites with a species alone (Solo) and percentage of collection sites with cohabitant culicid species (With others).

<u>Mosquito species</u>	Percentage of 108 larval collection sites		
	<u>Solo</u>	<u>With others</u>	<u>Total %</u>
<i>Aedes albopictus</i> (Skuse)	51	31	82
<i>Aedes atropalpus</i> (Coquillett)	2	2	4
<i>Aedes triseriatus</i> (Say)	5	6	11
<i>Anopheles punctipennis</i> (Say) / <i>perplexens</i> Ludlow	0	1	1
<i>Anopheles quadrimaculatus</i> sensu stricto Say	0	1	1
<i>Culex pipiens</i> Linnaeus / <i>quinquefasciatus</i> Say	6	11	17
<i>Culex restuans</i> Theobald	5	7	12
<i>Culex territans</i> Walker	0	2	2
<i>Toxorhynchites rutilus septentrionalis</i> (Dyar & Knab)	3	4	7

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